

Work Order ID 82679

82679

Page 1

April-04-12 1:57:13 PM

Item ID: D350-636-011

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: Skidtube LH

Stop *NS2*

Start Date: 04/04/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 18/04/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: MLJ

Date: 12/04/05 Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2750	F								
D3492	C								

100

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy blue file and type labels per PPP D350-636-011 CHG 006

JB 8/7/12/20
MLJ 12-4-20

82679

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR: Yes No** **DQA:** _____ **Date:** _____
Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110		0.00							
110	Skidtubes								
Skidtubes	Memo	0.00							
Skidtubes	1- Pick D2600-3 Bent								
	2- Deburr FWD and AFT ends, remove bending marks. Scribe batch# inside AFT end per dwg D2750								
	3- Drill pilot holes for blade fitting bolt holes using DT8983. Open to 0.500", deburr.								
	4- Locate DT8330 off of blade fitting bolt holes and drill pilot holes for blade fitting								
	5- Drill only two fwd step holes using DT9616. Ensure proper positioning.								
	6- Drill pilot holes as per Dwg D2750 sheet 4 (D2750-1 details). Drill using drill Jig DT8150 & DT8863A for first side only DT8863B for second side (detail B)								
	7- Clecko DT8863B on second side of tube and drill pilot holes for detail B. ***SECOND SIDE***								
	8-Open up holes for Detail B to 0.375" (4 holes per side) and blade fitting location holes to 0.500" (total of 4 holes per side) as per dwg D2750. Open up holes for ground handling and detail C to 0.500" (8 holes per side)								
	9-Drill pilot holes for wearplates as per Dwg D2750 using DT8108 open to 0.297".								
	10-Open up holes of Detail A to 0.297" (total of 2 holes per side)								

B 12/04/12

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Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

11-Weld D2744 Cap as per Dwg D2750 and QSI 004. Fill grooves in bend left
from bending as per QSI 004

A/R Aluminum Rod batch: *M120854*

BE 12/04/12

12-Grind welds flush as per Dwg D2750

->

CF 12-4-12

120

QC10- Inspect visual per QSI004- ground welds

0.00

120

QC

Memo

0.00

8/26/12

Quality Control

130

QC5- Inspect part completeness to step on W/O

0.00

130

QC

Memo

0.00

8/26/12

Quality Control

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Chemical Conversion Coat per QSI005 4.1	0.00							
140									
HandFinish	Memo	0.00							
Hand Finishing									
150	QC3- Inspect Part Finish	0.00							
150									
QC	Memo	0.00							
Quality Control									

2/6 12-4-12

DD 12-4-12

W/O:		WORK ORDER CHANGES					
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Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

160

0.00

160

Skidtubes

0.00

Skidtubes

Skidtubes

Memo

1-Open up holes of Detail C and ground handling to 0.625" (total of 8 holes per side)
as per dwg D2750.

2-Open up holes of Detail B to 0.750" (total of 4 holes per side)
as per dwg D2750.

3- Open float hole to 0.500" (4 per side)

4-Chamfer holes of Detail B, C, ground handling and float holes per dwg D2750
(welding instructions on sheet 8)

5-Deburr and blow out all chips from inside of tube

6- Prepare tube for welding, remove alodine as required.

7-Bond web D2739 in place as per OSI 015

A/R Sikaflex-291

batch: 12-04-13
exp. date: 12-8-13

8- Weld spacers D3490-1, D3490-3 and D2743 as per dwg D2750 & QS1004

(welding instructions on sheet 8)

A/R Aluminum Rod batch: m120854

9- At section AJ-AJ drill out x-bolt spacer to 0.404"

10-Grind welds flush as per Dwg D2750

DL 12/04/12

ZK 12-4-12
DL 12/04/12

→ CF 12-4-16

Dart Aerospace Ltd

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1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

11-Spot face ground handling holes section (total of 4 places per side) as per
dwg D2750

12-Deburr holes

170

QC10- Inspect visual per QSI004- ground welds

0.00

170

QC

Memo

0.00

Quality Control

180

QC5- Inspect part completeness to step on W/O

0.00

180

QC

Memo

0.00

Quality Control

7
SPC 12/04/16

8/2/2017

8/2/2017

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Run Start ***NR1***

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--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

190 Pressure Wash per QSI005 4.3

0.00

190

HandFinish

Memo

0.00

Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.

ML/RB 12-4-17

200 White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

200

Powdercoat

Powder Coating

Memo

START TIME: *9:30*

OVEN TEMPERATURE: *320°F*

FINISH TIME: *10:00*

0.00

ML 12/24/18

210 QC7-Inspect Chemical Conversion Coat

0.00

210

QC

Quality Control

Memo

Inspect for foreign object per QSI 024

0.00

PTO 12-4-19

ML 12/13/18

Dart Aerospace Ltd

W/O: 82679		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
12-4-19	210.	PERMANENT CHANGE. THAT SEQUENCE SHOULD BE Q3 Done <i>[Signature]</i>	BE	12-4-19			

Part No: D 350-636-011 PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220	HandFinishing	0.00							
220									
HandFinish	Memo	0.00							
Hand Finishing	1- Install inserts as per Dwg D2750								
230	HandFinishing	0.00							
230									
HandFinish	Memo	0.00							
Hand Finishing	1-Inspect for Foreign Objects								
	2-Spray inside of tube with "LPS-3" batch: <u>N/A</u>								
	3-Install blade fitting D3488-041, wearshoes and ground handling hardware as per dwg D2750 SIKA FLEX 241 BATCH: <u>121221</u> EXP DATE: <u>13/01</u>								
	4-assemble o'ring to plug as per dwg D3492 and apply o'ring lube A/R 55-o'ring lube batch: <u>110348</u>								
	5-Coat all exposed fasteners with "LPS Procyon" batch: <u>114596</u>								

Dart Aerospace Ltd

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Run Start ***NR1***

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Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

240 QC5- Inspect part completeness to step on W/O 0.00

240

QC Memo 0.00

Quality Control

250 Pick Kit 0.00

250

Packaging Memo 0.00

Packaging

260 QC4- 100% Inspect kits for completeness 0.00

260

QC Memo 0.00

Quality Control

*****ensure antiseize is on AN8C21A bolts*****

8/2/12

8/2/12

12/04/2010

Dart Aerospace Ltd

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Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

270

270

Packaging

Packaging

Memo

0.00

0.00

Rev I

Package as per PPP D350-636-011

[Signature]

12/4/10

280

280

QC

QC21- Final Inspection - Work Order Release

Memo

0.00

0.00

12/4/23

Quality Control

120420

Dart Aerospace Ltd

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Picklist Print

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Parent Item: D350-636-011

D350-636-011

Parent Item Name: Skidtube LH

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:I 02.09.25 Rearranged procedure steps KJ
 IPP Rev:J 06-03-23 As per Rev D JLM
 IPP Rev:K 06-07.13 As per dsi9343 EC
 IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verf:EC
 IPP Rev:M 08-04-22 update steps 4, 13 DD verified by:EC
 IPP Rev:N 08-09-23 revF as per dwg DD verified by:ec
 IPP Rev:O 09-02-06 apply antiseize on AN8C21A bolts as per PAR09-010
 DD verf:EC IPP Rev:P 10.06.22 revise
 seq110 DD verf:EC IPP Rev:Q 10.10.01 as per IIN revH
 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D3492-1		Manufactured	No			230	Each	46.0000	8	8			
D3492-1									**	8		14/04/19	
Plug													

Location	Loc Qty	Loc Code
FP002 81963 ✓	46	
69531	8	
74444	2	
76235	4	
77037	32	

D3492-3		Manufactured	No			230	Each	1.0000	8	8			
D3492-3									**	8		12/04/19	
Plug													

Location	Loc Qty	Loc Code
FP-A 31967 ✓	1	
78600	1	

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Parent Item Name: Skidtube LH

82679

D350-636-011

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

NAS1611-010

Purchased

No

230

Each

275.0000

8

8

NAS1611-010

O-RING

**

8

(20)

12/04/19

Location

Loc Qty

Loc Code

FP	50	
110915	0	
120770	50	
FP001	225	
110915	14	
117460	8	
118077	1	
118612	3	
119438	47	
120986	50	
121166 ✓	52	
121259	50	

NAS1149D0863J

Purchased

No

250

Each

219.0000

2

2

NAS1149D0863.J

WASHER

**

16

12/04/20

Location

Loc Qty

Loc Code

ST298	219	
118078	36	
119307	83	
120308	100	

119307

D2744

Manufactured

No

110

Each

46.0000

1

1

D2744

Cap

**

BE 12/04/12

Location

Loc Qty

Loc Code

LG002	46	
62715	1	
70881	3	
78900	42	

1

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Shop Packet Print

Page 2

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D350-636-011

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

D2600-3-BENT

Manufactured No

110 Each

15.0000 1

D2600-3-BENT

Extrusion Bent

**

①

BB 12/04/12

Location

Loc Qty

Loc Code

LG

82347

15

66875

7

73253

1

75021

1

75022

1

75023

1

81330

4

D2743

Manufactured No

160 Each

346.0000 8

D2743

Crossbolt Spacer

**

8

2E12/04/16

Location

Loc Qty

Loc Code

LG001

346

67766

4

68251

3

73403

64

74445

1

78603

2

79517

62

D2739

Manufactured No

160 Each

5.0000 1

D2739

350 I Beam

**

1

Location

Loc Qty

Loc Code

LG

82124

5

72155

1

81508

1

82122

3

1 7/6/12 4-2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Work Order ID: 82679

82679

Parent Item: D350-636-011

D350-636-011

Parent Item Name: Skidtube LH

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

D3490-3

Manufactured No

160

Each

90.0000

4

4

D3490-3

Cross Bolt Spacer

BE12/04/16

Location

Loc Qty

Loc Code

LG

88

82016

88

4

LG001

2

78800

2

D3490-1

Manufactured No

160

Each

124.0000

4

4

D3490-1

Cross Bolt Spacer

BE12/04/16

Location

Loc Qty

Loc Code

LG

115

81976

115

4

LG001

9

62450

2

74875

4

77042

3

~~MS4~~ MS4-1032-225

Purchased No

220

Each

2,477.000

38

38

AIS4-1032-225

Insert

38

OP 12/04/19

Location

Loc Qty

Loc Code

ST281

2454

108696

146

110768

62

118386

55

118966

68

120671

123

121269 ✓

2000

ST282

23

120410

10

120451

13

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Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Work Order ID: 82679

82679

Parent Item: D350-636-011

D350-636-011

Parent Item Name: Skidtube LH

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

D3793-3

Manufactured No

230

Each

30.0000

1

1

D3793-3

Wearshoe

**

12/04/19

Location

Loc Qty

Loc Code

FP001

23

80434 ✓

11

82166

12

FP002

7

78935

7

AN8C35A

Purchased

No

230

Each

56.0000

1

1

AN8C35A

BOLT

**

12/04/19

Location

Loc Qty

Loc Code

FP002

55

115960

1

117834

8

118286 ✓

46

ST346

1

114442

0

115188

0

115960

1

D3793-1

Manufactured

No

230

Each

26.0000

1

1

D3793-1

Wearshoe

**

12/04/19

Location

Loc Qty

Loc Code

FP001

26

78901 ✓

10

82171

16

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Work Order ID: 82679

82679

Parent Item: D350-636-011

D350-636-011

Parent Item Name: Skidtube LH

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

D3488-041

Manufactured No

230

Each

11.0000

1

1

D3488-041

Blade Fitting Assembly, LH

**

1

(2P) 12/04/19.

Location

Loc Qty

Loc Code

FP002

11

61689

1

75056

2

77021 ✓

8

D3794-3

Manufactured No

230

Each

23.0000

1

1

D3794-3

Gasket

**

1

(2P) 12/04/19.

Location

Loc Qty

Loc Code

FP002

23

74530

2

80436 ✓

21

AN6C44A

Purchased No

230

Each

175.0000

4

4

AN6C44A

BOLT

**

4

(2P) 12/04/19.

Location

Loc Qty

Loc Code

FG

2

103964

2

ST343

173

120143

25

120465 ✓

27

120641

1

121013

20

121167

100

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Work Order ID: 82679

Parent Item: D350-636-011

Parent Item Name: Skidtube LH

82679

D350-636-011

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

MS21083C8

Purchased

No

230

Each

115.0000

1

1

MS21083C8

NUT

**

1

(28)

12/04/19

Location

Loc Qty

Loc Code

304

50

121185

50

FP002

1

115884

1

ST303

6

115884

0

118077

1

119309

2

119436

1

119638

2

ST304

58

120142

8

120731 ✓

25

121011

25

D3536-25

Manufactured

No

230

Each

22.0000

1

1

D3536-25

Gasket

**

1

(28)

12/04/19

Location

Loc Qty

Loc Code

FP

14

81342

14

FP002

8

78902 ✓

8

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Work Order ID: 82679

82679

Parent Item: D350-636-011

D350-636-011

Parent Item Name: Skidtube LH

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

D3631-1 Manufactured No 230 Each 243.0000 8 8
D3631-1 ** 8 (DP) 12/04/19
 Washer

Location	Loc Qty	Loc Code
FG	100	
81874	100	
ST072	143	
68062	2	
75548 ✓	141	

D3791-1 Manufactured No 230 Each 9.0000 1 1
D3791-1 ** 1 (DP) 12/04/19
 Wearplate

Location	Loc Qty	Loc Code
FP002 82168 ✓	9	
62239	2	
78897	7	

AN960C10L ✱ NAS1149C0332 ✓ Purchased No 230 Each 0.0000 38 38
***AN960C10I *** ** 38 (DP) 12/04/19
 washer
 D2745 Manufactured No 230 Each 64.0000 8 8
D2745 ** 8 (DP) 12/04/19
 Bushing

Location	Loc Qty	Loc Code
FP 81964 ✓	62	
79518	62	
FP001	2	
69529	1	
76142	1	

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Work Order ID: 82679

Parent Item: D350-636-011

Parent Item Name: Skidtube LH

82679

D350-636-011

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

AN3C5A

Purchased

No

230

Each

1,602.000

34

34

AN3C5A

Bolt

**

34

(2P)

12/04/12

Location

Loc Qty

Loc Code

FP001

7

115835

7

ST350

1595

116419

28

117343

13

117764

7

117872

2

119749

23

120423 ✓

522

1210168

500

121255

500

D3537-1

Manufactured

No

230

Each

26.0000

3

3

D3537-1

Wearpad

**

3

(2P)

12/04/12

Location

Loc Qty

Loc Code

FG

10

73716 ✓

10

FP002

16

69817

5

80337

11

NAS1149C0832R

Purchased

No

230

Each

295.0000

1

1

NAS1149C0832R

WASHER

**

1

(2P)

12/04/12

Location

Loc Qty

Loc Code

ST297

295

114915 ✓

295

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Page 9

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 10

Work Order ID: 82679

Parent Item: D350-636-011

Parent Item Name: Skidtube LH

82679

D350-636-011

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

AN3C6A

Purchased

No

230

Each

517.0000

4

4

AN3C6A

BOLT

**

4 (2P) 12/04/19

Location

Loc Qty

Loc Code

FP001

1

111982

1

ST351

516

111982

2

116419

23

116549

2

116704

12

117619

10

117688

1

117872

5

118422

13

119449

21

120423

27

120693 ✓

400

NAS1611-013

Purchased

No

230

Each

250.0000

8

8

NAS1611-013

O-RING

**

8 (2P) 12/04/19

Location

Loc Qty

Loc Code

FP001

250

116582

5

117291

2

117887

53

119623

36

120910

4

121166 ✓

100

121259

50

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 11

Work Order ID: 82679

82679

Parent Item: D350-636-011

D350-636-011

Parent Item Name: Skidtube LH

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

D3535-25

Manufactured No

230

Each

22.0000

1

1

D3535-25

Wearshoe

**

SP 12/04/19

Location

Loc Qty

Loc Code

FP001

22

62233

1

80331 ✓

10

81357

11

D3794-1

Manufactured No

230

Each

16.0000

1

1

D3794-1

Gasket

**

SP 12/04/19

Location

Loc Qty

Loc Code

FP002

16

75042 ✓

4

80435

12

MS21043-6

Purchased No

230

Each

773.0000

4

4

MS21043-6

NUT

**

SP 12/04/19

Location

Loc Qty

Loc Code

FG

20

103693

20

ST301

753

112314 ✓

47

117887

6

118384

200

120308

500

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 12

Work Order ID: 82679

Parent Item: D350-636-011

Parent Item Name: Skidtube LH

82679

D350-636-011

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

D3493-1

Manufactured No

250

Each

54.0000

2

2

**

D3493-1

Washer

Location

Loc Qty

Loc Code

ST050

54

70697

2

77573

12

78835

40

78835

MS21083C8

Purchased

No

250

Each

115.0000

2

2

**

MS21083C8

NUT

Location

Loc Qty

Loc Code

304

50

121185

50

FP002

1

115884

1

ST303

6

115884

0

118077

1

119309

2

119436

1

119638

2

ST304

58

120142

8

120731

25

121011

25

121011

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 13

Work Order ID: 82679

82679

Parent Item: D350-636-011

D350-636-011

Parent Item Name: Skidtube LH

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

AN8C21A

Purchased

No

250

Each

79.0000

2

2

✓

AN8C21A

BOLT

**

JO

Location

Loc Qty

Loc Code

ST343

79

118758

5

120094

34

121067

20

121167

20

120094

NAS1515H3L

Purchased

No

230

Each

198.0000

4

4

*NAS1515H3I *

WASHER

**

4 (2P) 12/04/19.

Location

Loc Qty

Loc Code

FG

40

102472

40

ST277

158

118686

3

119438

1

120072

8

120360

96

121243

50

D2741

Manufactured

No

250

Each

67.0000

1

1

✓

D2741

Blade, 350 Skidtube

**

JO 12/04/20

Location

Loc Qty

Loc Code

ST

-10

ST466

77

71856

1

76984

26

79516

40

79516

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Work Order ID: 82679

82679

Parent Item: D350-636-011

D350-636-011

Parent Item Name: Skidtube LH

Start Date: 04/04/2012

Required Date: 18/04/2012

Start Qty: 1.00

Required Qty: 1.00

D3532-1

Manufactured No

250

Each

55.0000

2

2

**

D3532-1

Spacer.

JB/12/04/20

Location

Loc Qty

Loc Code

ST053

55

78839

31

82041

24

78839

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

QTY -041	QTY -042	QTY -043	QTY -044	PART NUMBER	DESCRIPTION
X				D2750-041	350 SKIDTUBE ASSEMBLY, LH
	X			D2750-042	350 SKIDTUBE ASSEMBLY, RH
		X		D2750-043	350 SKIDTUBE ASSEMBLY, LH
			X	D2750-044	350 SKIDTUBE ASSEMBLY, RH
1	1	1	1	D2739	WEB
8	8	8	8	D2743	SPACER
1	1	1	1	D2744	CAP
8	8	8	8	D2745	BUSHING
1				D2750-1	SKIDTUBE WELDMENT, LH
	1			D2750-2	SKIDTUBE WELDMENT, RH
		1		D2750-3	SKIDTUBE WELDMENT, LH
			1	D2750-4	SKIDTUBE WELDMENT, RH
1		1		D3488-041	BLADE FITTING, LH
	1		1	D3488-042	BLADE FITTING, RH
4	4	4	4	D3490-1	SPACER
4	4			D3490-3	SPACER
		4	4	D3490-5	SPACER
8	8	8	8	D3492-041	PLUG ASSEMBLY
8	8			D3492-043	PLUG ASSEMBLY
		8	8	D3492-045	PLUG ASSEMBLY
1	1	1	1	D3535-25	WEARSHOE
1	1	1	1	D3536-25	GASKET
3	3	3	3	D3537-1	WEARPAD
8	8	8	8	D3631-1	WASHER
1	1	1	1	D3791-1	WEARPLATE
1	1	1	1	D3793-1	WEARSHOE
1	1	1	1	D3793-3	WEARSHOE
1	1	1	1	D3794-1	GASKET
1	1	1	1	D3794-3	GASKET
38	38	38	38	ALS4-1032-225	INSERT (OR ALS7-1032-225, AKS4-1032-225, AELS-1032-225)
34	34	34	34	AN3C5A	BOLT
4	4	4	4	AN3C6A	BOLT
4	4	4	4	AN6C44A	BOLT
1	1	1	1	AN8C35A	BOLT
38	38	38	38	AN960C10L	WASHER
1	1	1	1	AN960C816L	WASHER
4	4	4	4	MS21043-6	NUT
1	1	1	1	MS21083C8	NUT
4	4	4	4	NAS1515H3L	WASHER

GENERAL NOTES:

- 1) MATERIAL: MAKE D2750-1/-2/-3/-4 FROM D2600-3 EXTRUSION (INITIAL LENGTH = 120.0).
- 2) FINISH:
ACID ETCH, ALONG ASSEMBLY PER DART QSI 005 4.1 PRIOR TO INSTALLING D2739 WEB.
POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4.4 (OPTIONAL).
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: D2750-041/-042/-043/-044 = 26.5 LBS
- 8) WELD PER DART QSI 004
- 9) INSTALL ALS4-1032-225 INSERTS AFTER FINISH AS INDICATED. DRILL 'F' SIZE HOLES ($\phi 0.297$) FOR WEARSHOE INSERTS
- 10) FINAL CONFIGURATION SHOULD HAVE THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:
MINIMUM YIELD TENSILE STRENGTH = 35 KSI
MINIMUM ULTIMATE TENSILE STRENGTH = 38 KSI
- 11) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS.
COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF
POWDER COATING WITH MEK DEGREASER.
- 12) SPACER AND PLUG INSTALLED SAME AS SECTION AJ-AJ EXCEPT HORIZONTAL
- 13) SPACER AND PLUG INSTALLED SAME AS SECTION AP-AP EXCEPT HORIZONTAL

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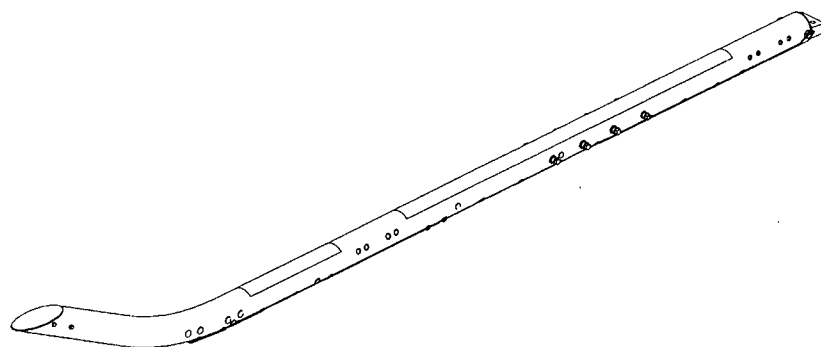
WITHOUT NOTICE
WORK ORDER
NO. 82679 MCT
12/04/05

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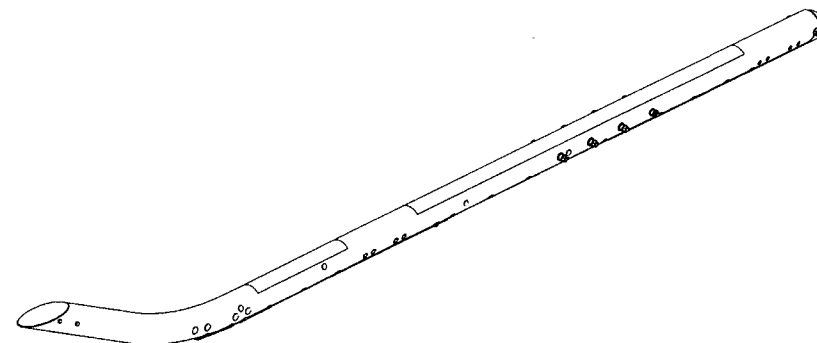
F	INCORPORATE DSI 9413; QTY (3) D3537-1 WAS QTY (5) (ZN C8-1); D3791-1/-3 REPLACES D3535-13/-35 (ZN C8-1); D3794-1/-3 REPLACES D3536-13/-35 (ZN B8-1); ADD D3791-1 (ZN C8-1); WEARSHOE HOLES UNDER FWD/AFT SADDLE REMOVED (8 PL). WEARSHOE HARDWARE QTY UPDATED (ZN B8-1); D3488-041/-042 HARDWARE UPDATED (ZN C1-8, 9, 10, 11); ADD NOTE 12 AND 13 (ZN A6-1); REASON: REF. NCR 08-043	PH	08.07.16
E	CHANGE TO STAINLESS STEEL WEARPLATES; ADD RUBBER GASKETS, CHANGE INSERTS, ADD D3831-1; REMOVE QTY (38) NAS1515H3L; REMOVE QTY (10) NAS1515H8L; REMOVE D2741; QTY (2) AN960C816; REMOVE QTY (2) MS21083C8	CB	07.05.17
D	ADD HOLES AND SPACERS FOR APICAL FLOATS; INCORPORATE DEC 9133/9157	PH	06.01.05
C	ADD D2750-3/D2750-4; INCORPORATE D2738 AND D2740	CP	98.11.18
B	CHANGE MS24694-S293 TO AN8-16A	CP	98.09.01
A	NEW ISSUE	DS	98.04.16
REV.	DESCRIPTION	BY	DATE
DESIGN	RA		
DRAWN	RA		
CHECKED	AK		
MFG. APPR.	AK		
APPROVED	AK		
DE APPR.	AK		
DATE	08.07.16		

DART AEROSPACE USA, INC.	
PORT HADLOCK, WA	
DRAWING NO.	REV. F
D2750	SHEET 1 OF 11
TITLE	SCALE
350 SKIDTUBE ASSEMBLY	NTS
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8267R



D2750-041 350 SKIDTUBE ASSEMBLY, LH

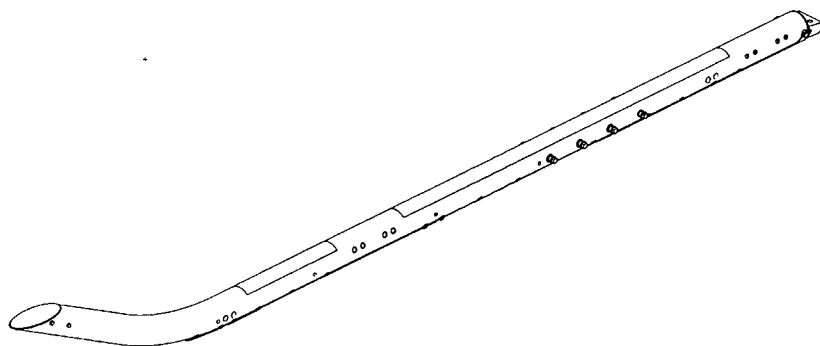


D2750-042 350 SKIDTUBE ASSEMBLY, RH

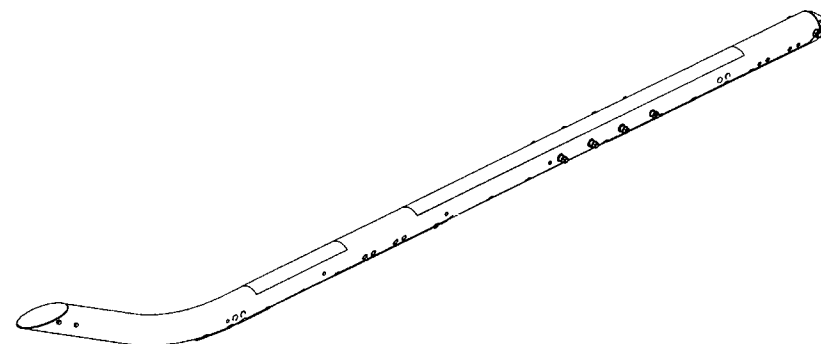
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15 APR 1974

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CHECKED	A	DRAWING NO.	REV. F
MFG. APPR.	SA	D2750	SHEET 2 OF 11
APPROVED	ME	TITLE	SCALE
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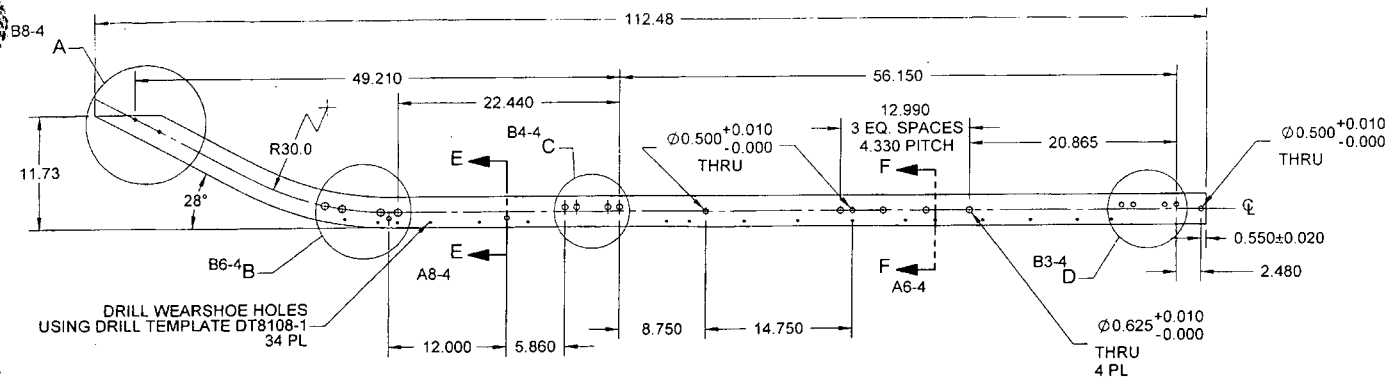
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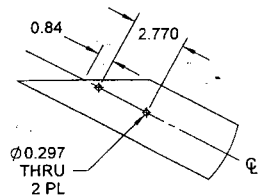
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68-9-22/17

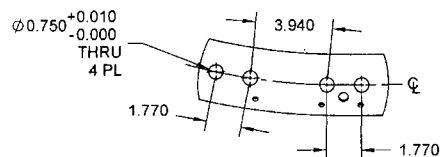
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DRAWN	PD	PORT HADLOCK, WA	
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DE APPR.	DA	350 SKIDTUBE ASSEMBLY	NTS
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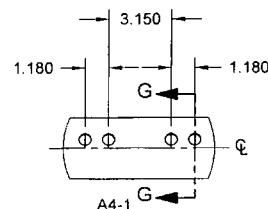
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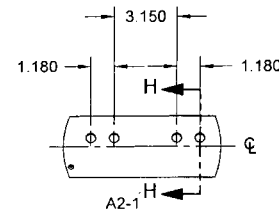
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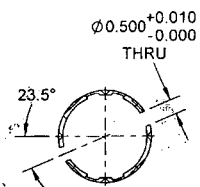
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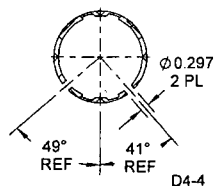
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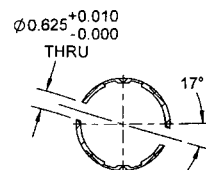
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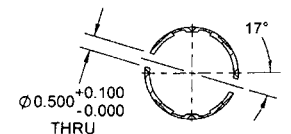
SECTION E-E
SCALE 3X, 2 PL



SECTION F-F
SCALE 3X, 17 PL



SECTION G-G
SCALE 3X, 4 PL



SECTION H-H
SCALE 3X, 4 PL

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CHECKED	IP
MFG. APPR.	IP
APPROVED	IP
DE APPR.	IP
DATE	08.07.16

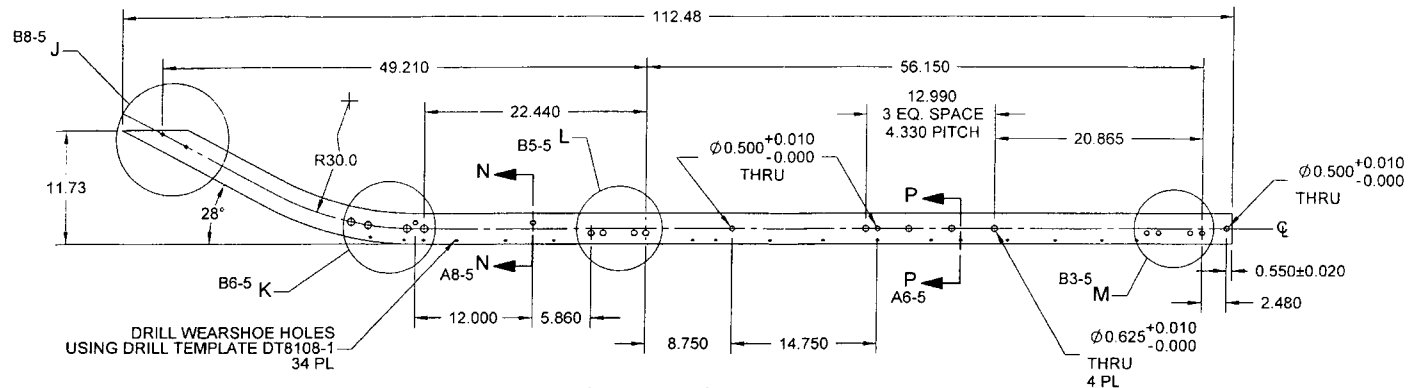
DART AEROSPACE USA, INC.
PORT HADLOCK, WA

DRAWING NO. **D2750** REV. F
TITLE **350 SKIDTUBE ASSEMBLY** SCALE NTS

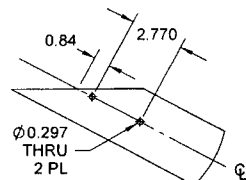
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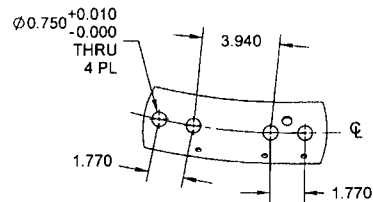
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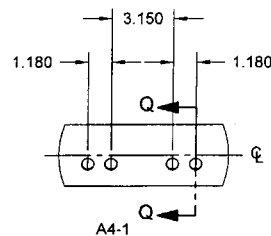
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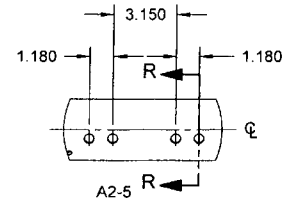
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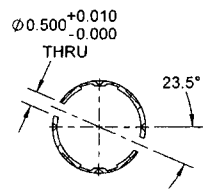
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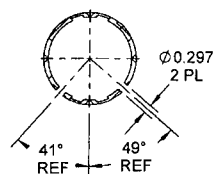
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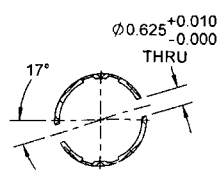
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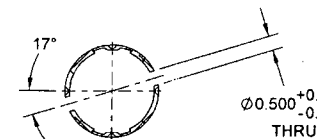
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SCALE 3X, 2 PL



SECTION P-P
SCALE 3X, 17 PL



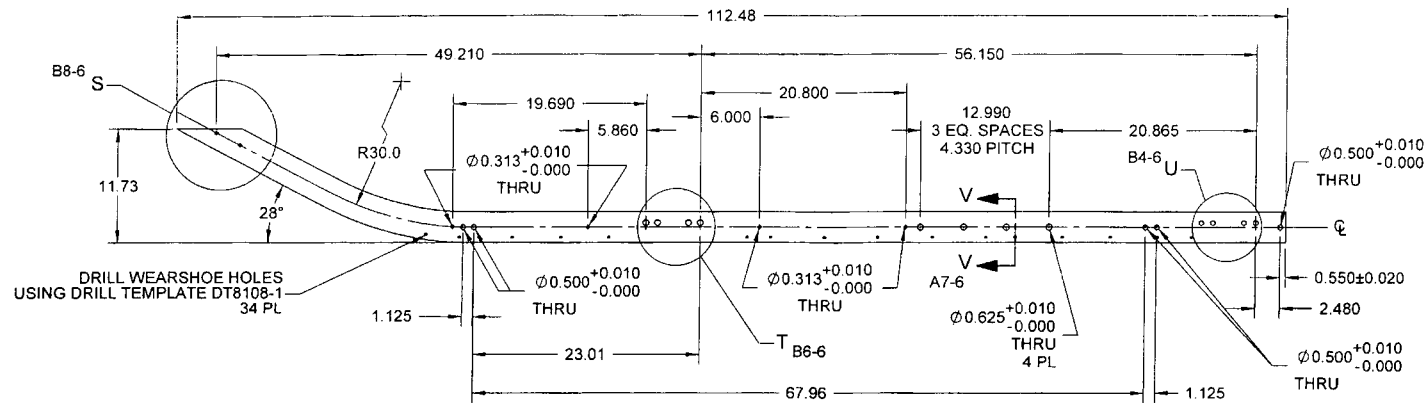
SECTION Q-Q
SCALE 3X, 4 PL



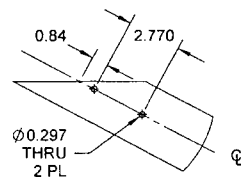
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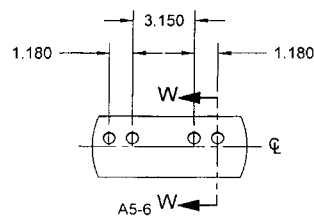
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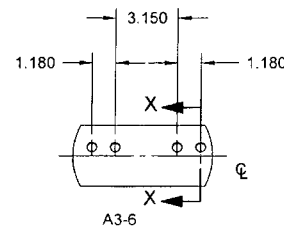
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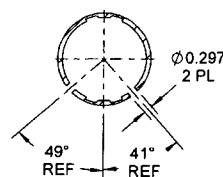
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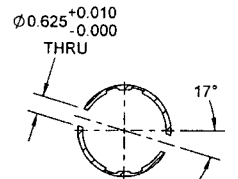
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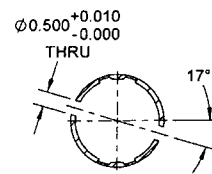
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SECTION V-V
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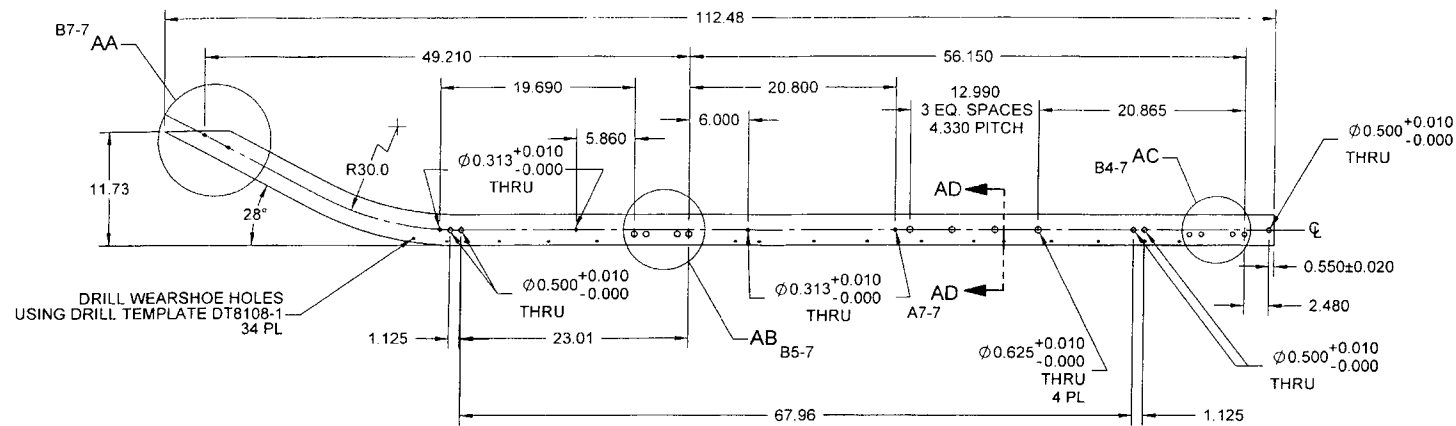
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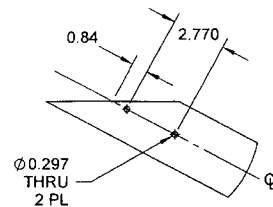
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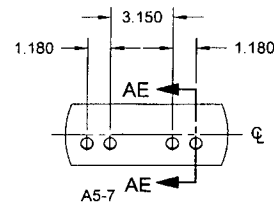
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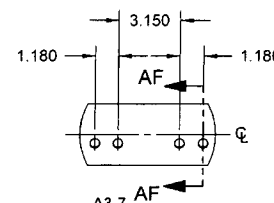
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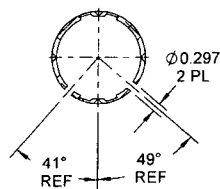
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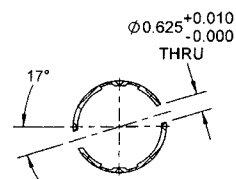
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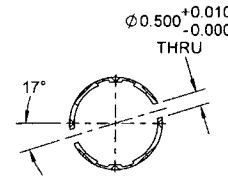
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SECTION AD-AD
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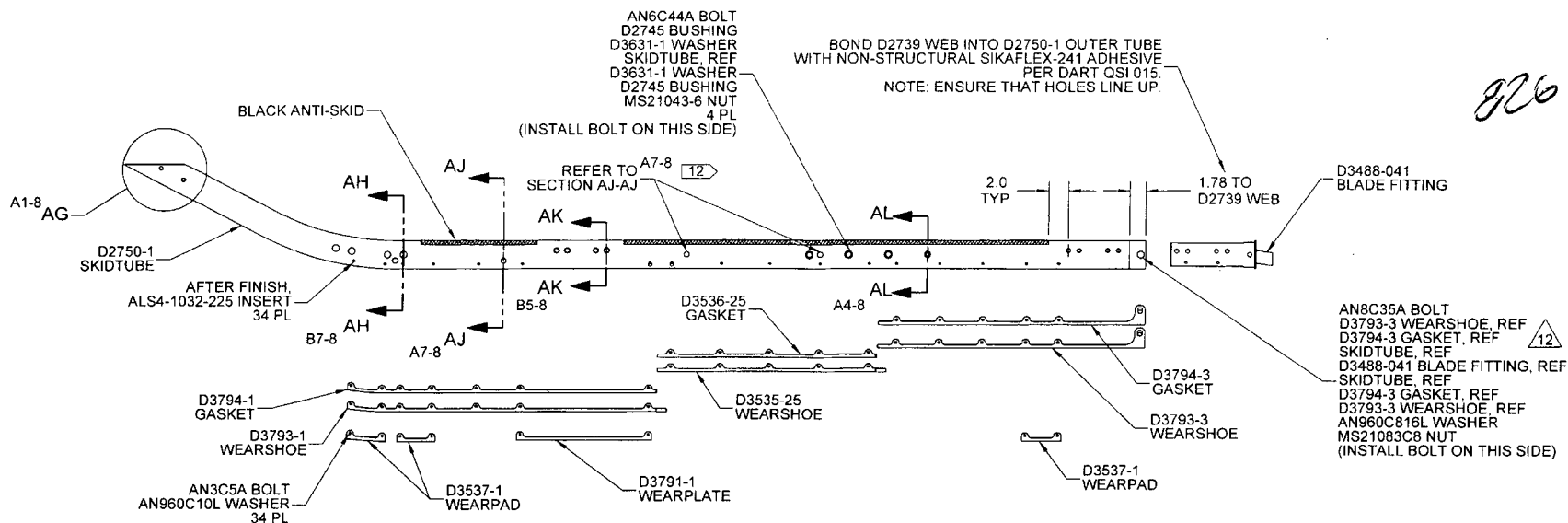
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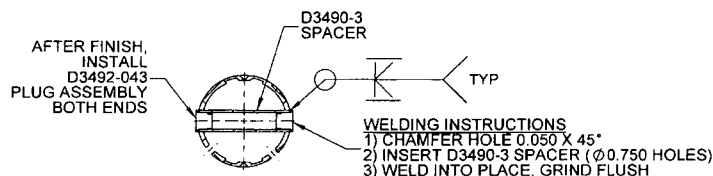
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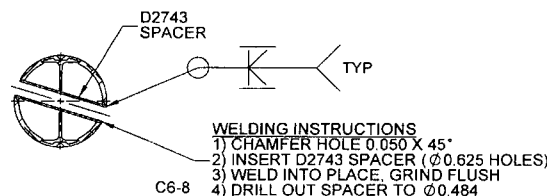
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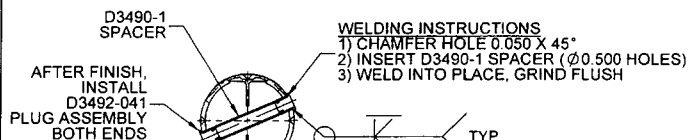
D2750-041 350 SKIDTUBE ASSEMBLY, LH



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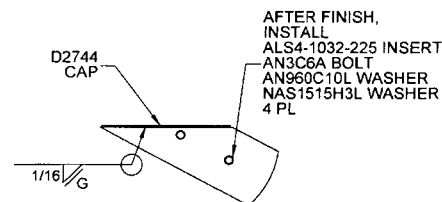
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SECTION AJ-AJ
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SECTION AL-AL
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(HARDWARE REMOVED FOR CLARITY)



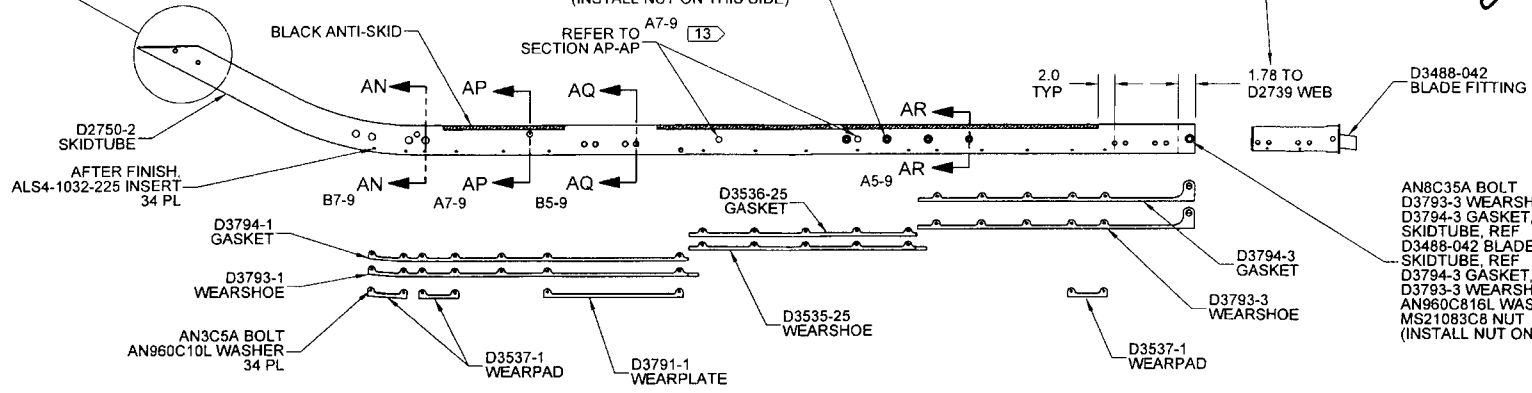
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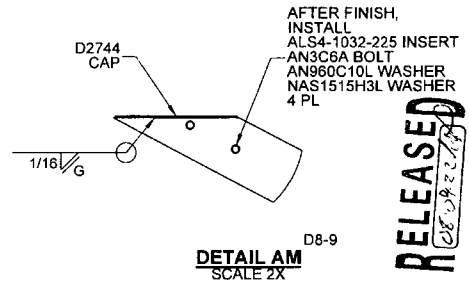
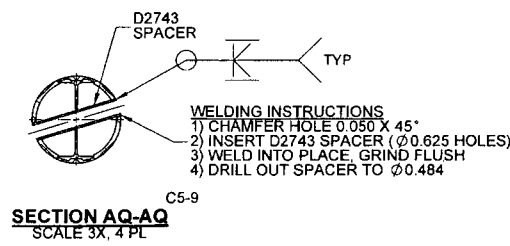
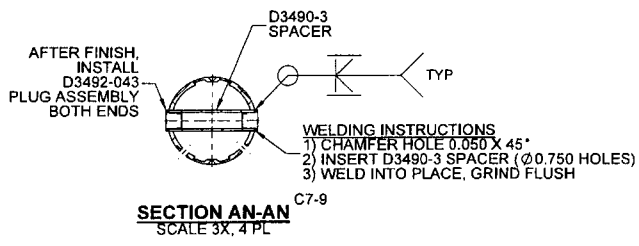
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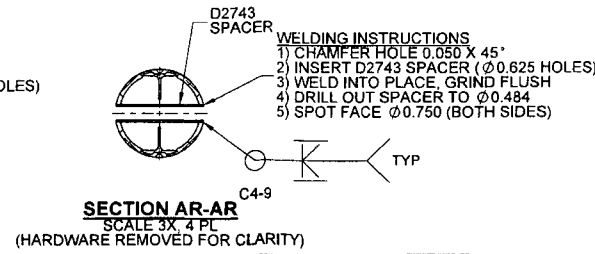
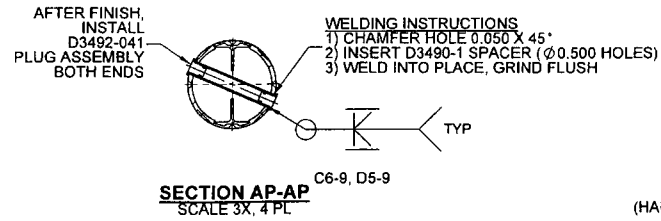


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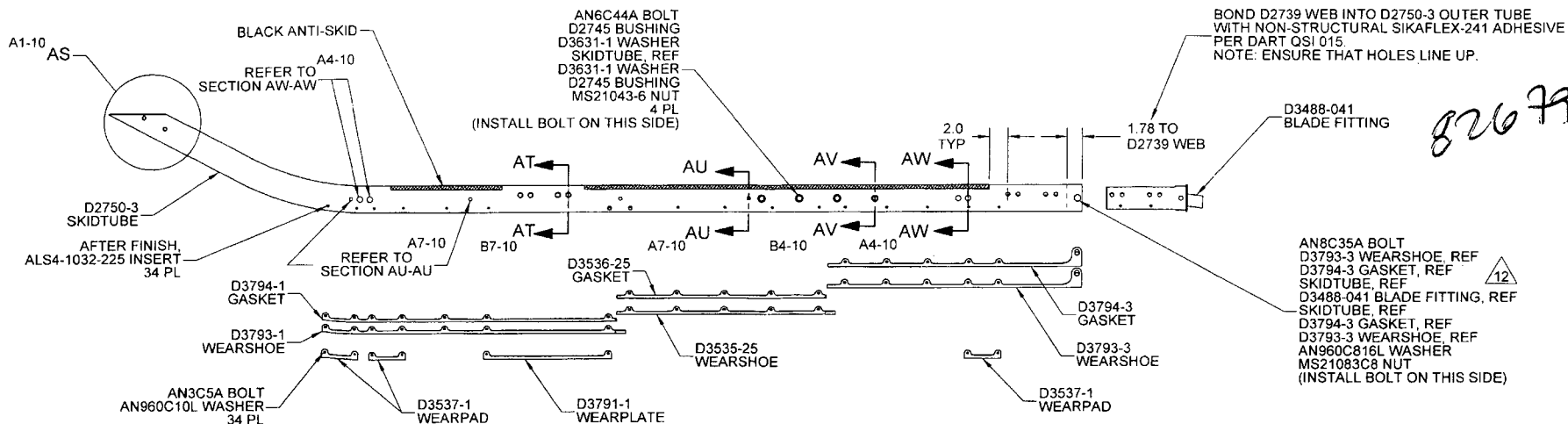
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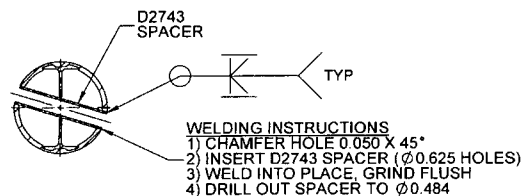
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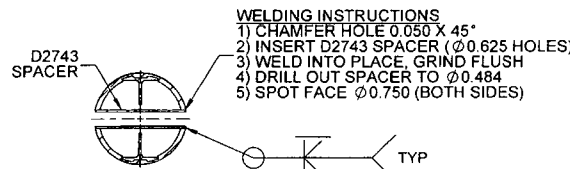
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CHECKED		DRAWING NO.	REV. F
MFG. APPR.		D2750	SHEET 9 OF 11
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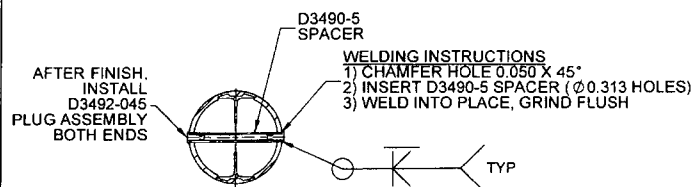
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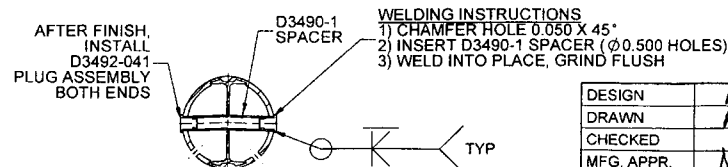
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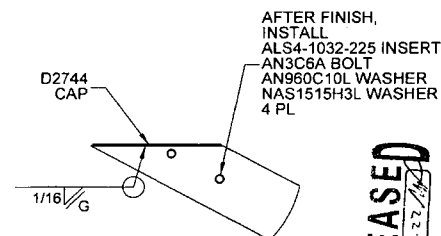
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(HARDWARE REMOVED FOR CLARITY)



SECTION AU-AU
SCALE 3X, 4 PL



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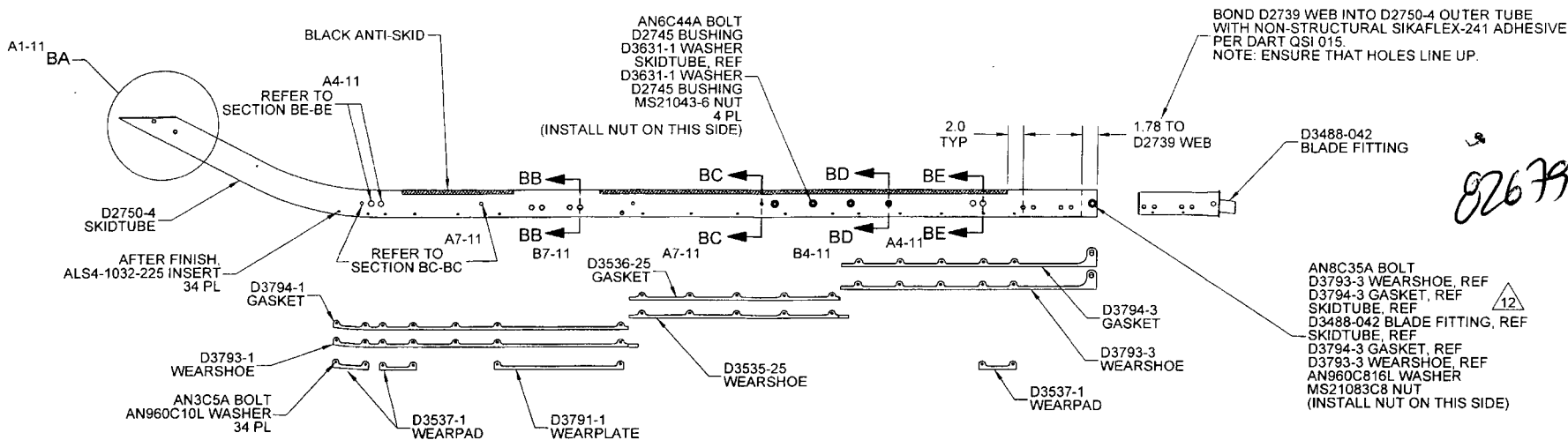


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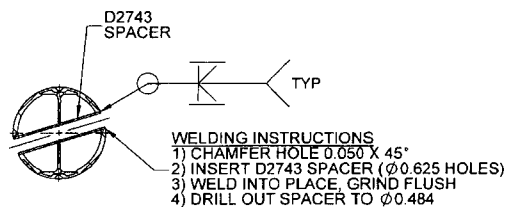
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CIV. 08/27/16

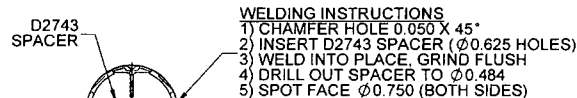
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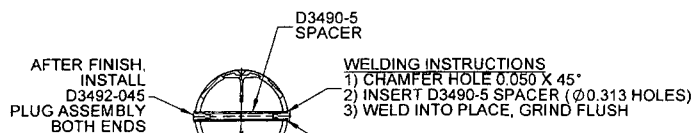
D2750-044 350 SKIDTUBE ASSEMBLY, RH



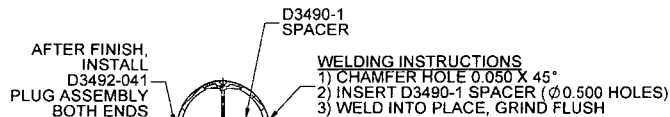
SECTION BB-BB
SCALE 3X, 4 PL



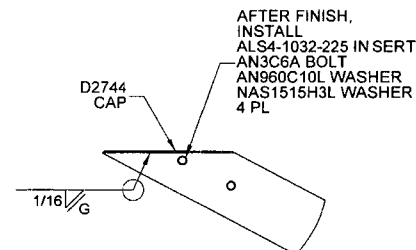
SECTION BD-BD
SCALE 3X, 4 PL
(HARDWARE REMOVED FOR CLARITY)



SECTION BC-BC
SCALE 3X, 4 PL



SECTION BE-BE
SCALE 3X, 4 PL



DETAIL BA
SCALE 2X

DESIGN	HA	DART AEROSPACE USA, INC.	
DRAWN	HA	PORT HADLOCK, WA	
CHECKED	HA	DRAWING NO.	REV. F
MFG. APPR.	HA	D2750	SHEET 11 OF 11
APPROVED	HA	TITLE	SCALE
DE APPR.	HA	350 SKIDTUBE ASSEMBLY	NTS
DATE	08.07.16	COPYRIGHT © 1998 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL. IT IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

NO. 286

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barclay Elliott
Job number: 82189
Part number: A350-686-012
Description: Skid tube
Welding Process: Tig[☒] Mig[]
Base material: Alum.
Current: AC[☒] DC[]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[]
Penetration: pass[☒] fail[]

UNACCEPTABLE

Cracks: pass[☒] fail[]
Undercut: pass[☒] fail[]
Pin holes: pass[☒] fail[]
Overlap (cold lap): pass[☒] fail[]
Porosity (surface): pass[☒] fail[]
Coloration: pass[☒] fail[]

Qualifier David Lund Date of Test Coupon 12.24.03
Welder Barclay Elliott Date of Test Coupon 12-04-03

The above named individual is qualified in accordance with AWS D17.1.2001 to weld